

Sect. 3.3

$$53) \sec s = 1.0806$$

$$s = \sec^{-1}(1.0806)$$

$$\frac{1}{\cos s} = 1.0806$$

$$\cos s = \frac{1}{1.0806}$$

$$s = \cos^{-1}\left(\frac{1}{1.0806}\right)$$

$$\cos^{-1}\left(\frac{1}{1.0806}\right)$$

$$s = 2.124$$

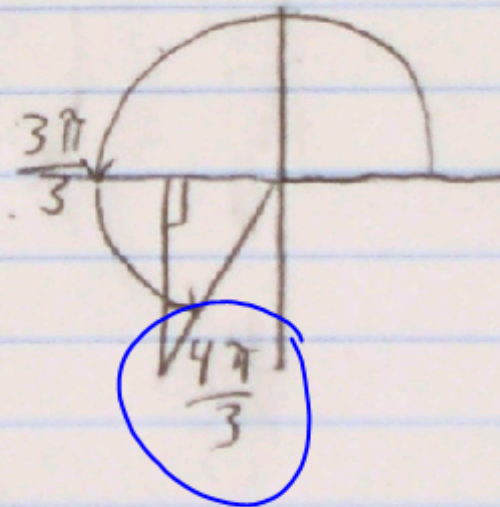
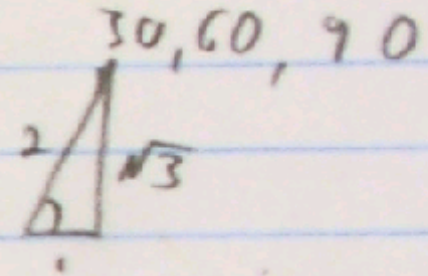
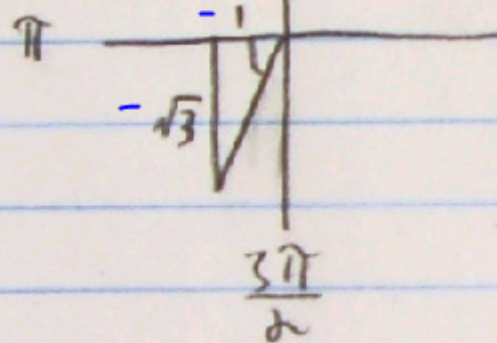
$$0.388$$



# Sect. 3.3

57  $\left[ \pi, \frac{3\pi}{2} \right] \tan s = \frac{\sqrt{3}}{1}$

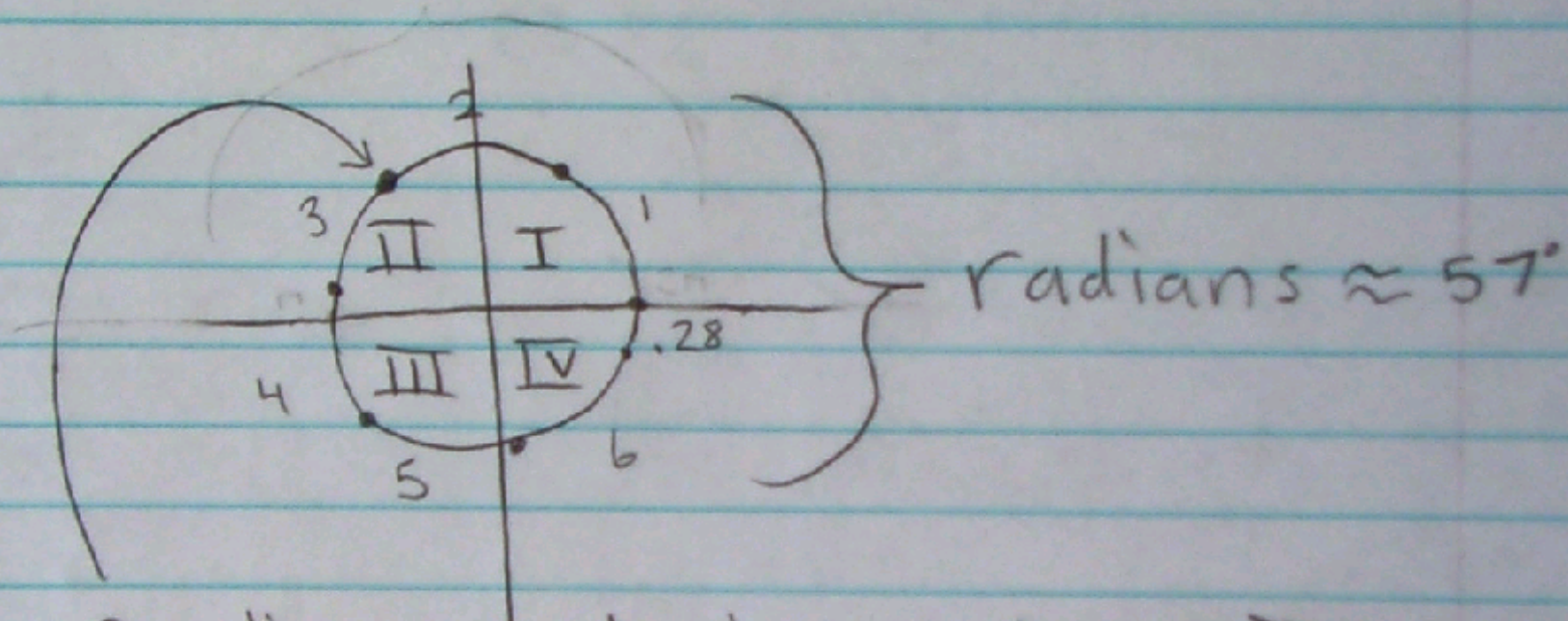
$$\tan s = \frac{\sqrt{3}}{1}$$





# Sect. 3.3

39.) w/o calculator, is  $\cos 2$  pos or neg



2 radians lands in quadrant II,  
according to "all silver tea cups"  
cosine in that quadrant is negative



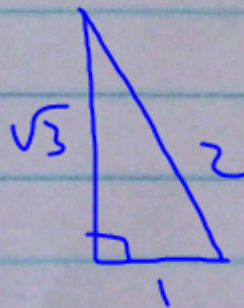
## Sect. 3.3

$$60. \left[ \frac{3\pi}{2}, 2\pi \right); \cos s = \frac{\sqrt{3}}{2}$$

$$270^\circ, 360$$

Quadrant 4.

$$\cos s = \frac{\sqrt{3}}{2} = \frac{11\pi}{6} = 330^\circ$$



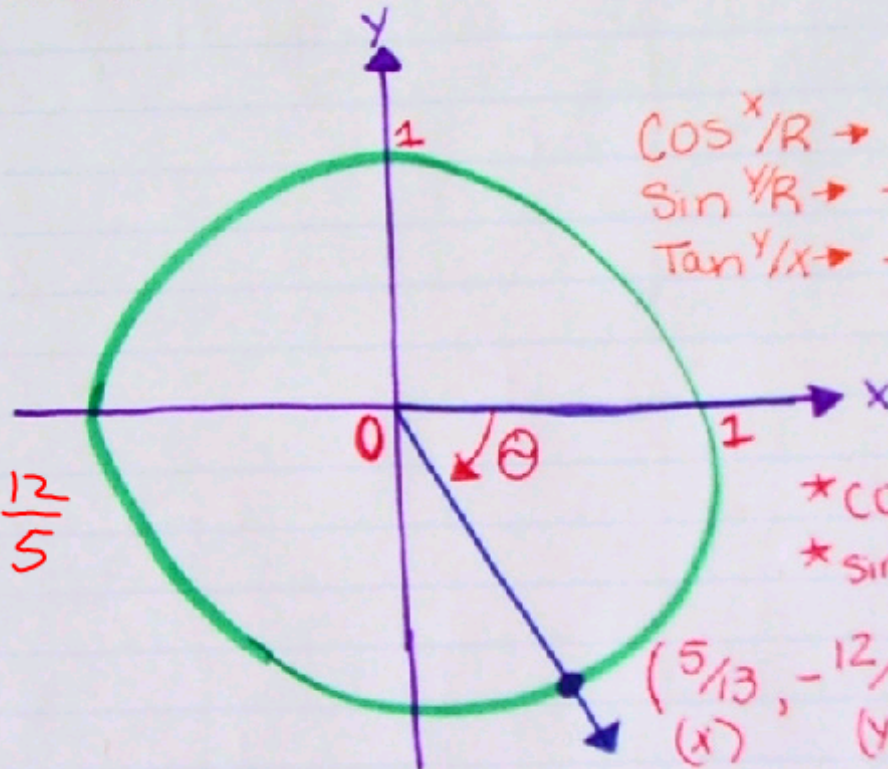


# Sect. Question 47 (3.3)

$$-\frac{12}{13}$$

$$\frac{5}{13}$$

$$-\frac{12}{13} \cdot \frac{13}{5} = -\frac{12}{5}$$



$$\begin{aligned}\cos^x/R &\rightarrow 5/13 \\ \sin^y/R &\rightarrow -12/13 \\ \tan^y/x &\rightarrow -12/5\end{aligned}$$

$$\begin{aligned}\sec &\rightarrow 13/5 \\ \csc &\rightarrow -13/12 \\ \cot &\rightarrow -5/12\end{aligned}$$

$$\star \cos \leadsto x$$

$$\star \sin \leadsto y$$

$$\begin{pmatrix} 5/13 \\ (x) \end{pmatrix}, \begin{pmatrix} -12/13 \\ (y) \end{pmatrix}$$

\* Evaluate the six circular function values of  $\theta$ .



section 3.2 problem 24

- A. 55 miles  $\Rightarrow$  convert into inches

$$\frac{55 \text{ miles}}{1} \cdot \frac{5280 \text{ ft}}{1 \text{ mile}} \cdot \frac{12 \text{ inches}}{1 \text{ foot}} = \frac{3484800}{1}$$

$$\frac{55 \cdot 5280 \cdot 12}{1 \cdot 1 \cdot 1} =$$

3,484,800 inches per hour

$$\frac{3,484,800}{28\pi} \Rightarrow 39615.94 \text{ rotations per hour}$$

circumference  
of tire

- B. 39615.94 rotations per hour

•  $32\pi$  = circumference of bigger tire

3,982,628.674 = total distance travelled

$$\frac{3,982,628}{1} \cdot \frac{1 \text{ foot}}{12 \text{ inches}} \cdot \frac{1 \text{ mile}}{5280 \text{ ft}} = 62.86 \text{ miles per hour}$$

yes, he was speeding by close to  
8 miles over the speed limit



gonometr...

Workspace

IM Image Mate

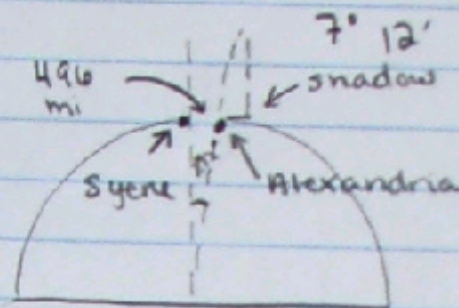
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Section 3.2

#47



$$S = r\theta$$

$$s = 496$$

$$\theta = 7^\circ 12' = 7.2$$

conversion

$$7.2^\circ \left( \frac{\pi}{180} \right) = \frac{7.2}{180} (\pi) = \boxed{0.4\pi}$$

0.04π

$$\frac{496}{(0.4\pi)} = \frac{r(0.4\pi)}{(0.4\pi)}$$

$$\boxed{3947.04 = r}$$

$$2\pi 3947.04 = \boxed{24799.983 = C}$$



radians 3.2

$$r\theta = s$$

Find dist. bike traveled

$$(23) \quad 4.72 \left( \frac{180^\circ \cdot \pi}{180^\circ} \right)$$

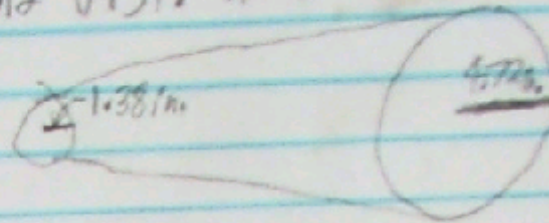


$$4.72 (\pi) = 14.8208 \text{ in.}$$

$$\frac{14.8208}{1.38} = 10.740$$

$$\theta = 10.740 \text{ radians}$$

$$10.740 (13.6) = 146.064 \text{ in.}$$



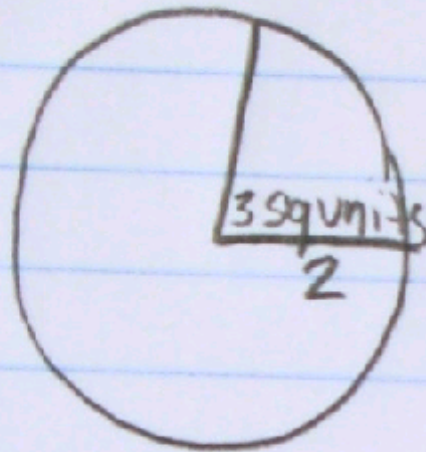
$$\text{tire} = 13.6 \text{ in.}$$



3.2 #29

$$\text{Area Sector} = \frac{\theta}{2\pi} (\pi r^2)$$

$$\text{Area Sector} = \frac{\theta r^2}{2}$$



$$A = \frac{1}{2} r^2 \theta$$

$$3 = \frac{1}{2} (2)^2 \theta$$

$$3 = \frac{1}{2} (4) \theta$$

$$\frac{3}{2} = \frac{2\theta}{2}$$

$$1.5 \text{ or } \frac{3}{2} = \theta$$



# 22

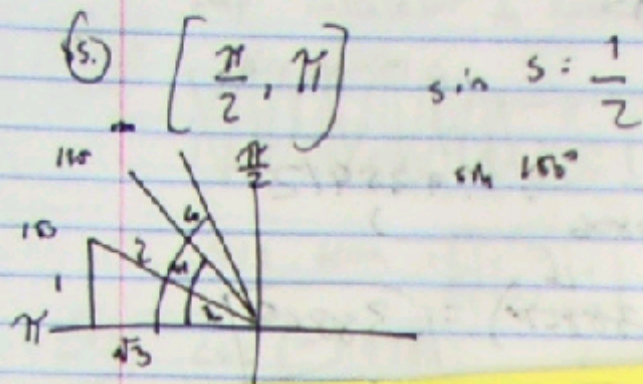
sect. 3.2

$$\frac{80}{50} = 1.6$$

$$1.6 \cdot 11.7 = 18.72$$



# Sect. 3.3

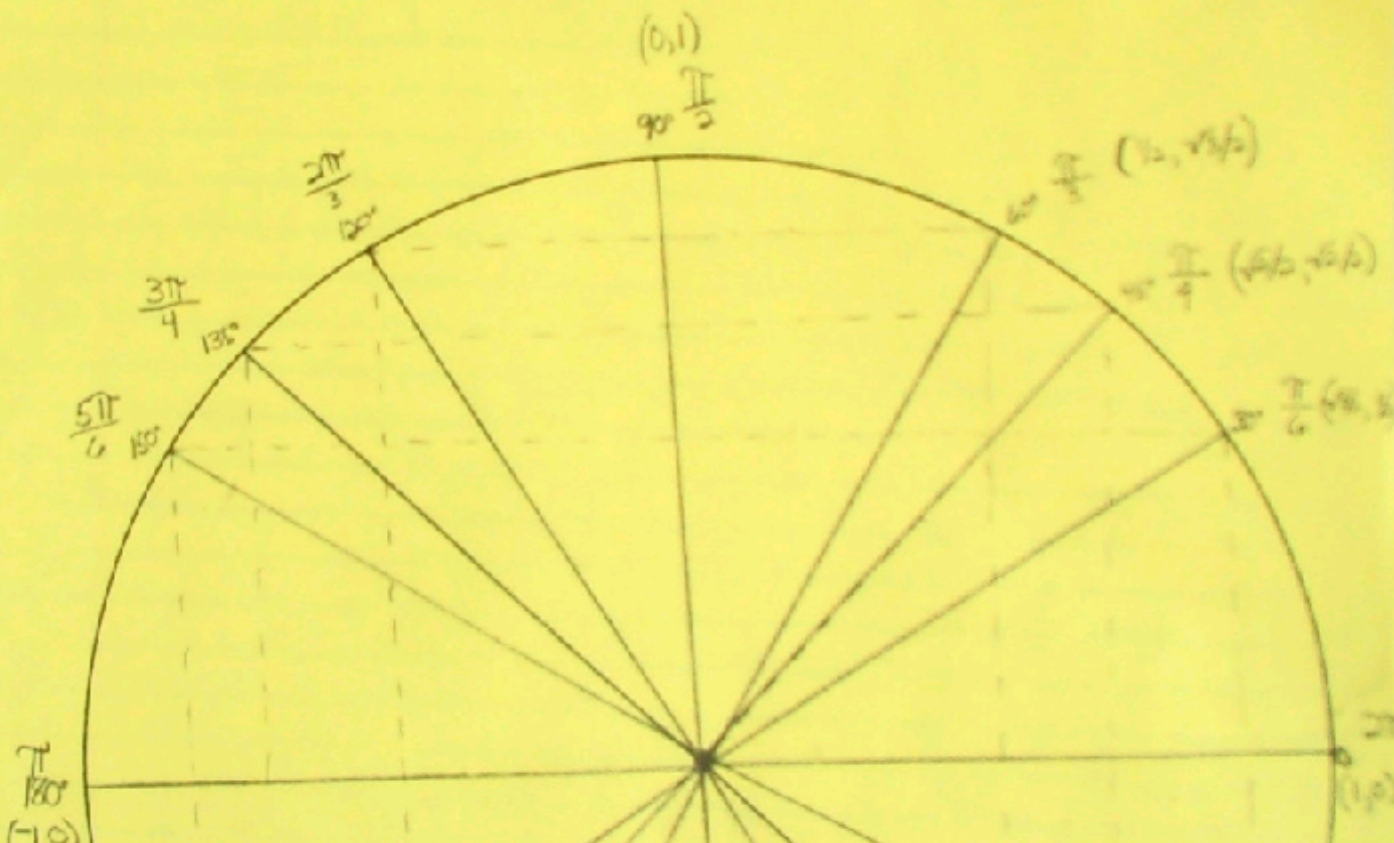


$\sin 150^\circ$

$\frac{150^\circ \pi}{180}$

$\frac{5\pi}{6}$

Hey!





59.  $[\frac{3\pi}{2}, 2\pi]; \tan S = 1$

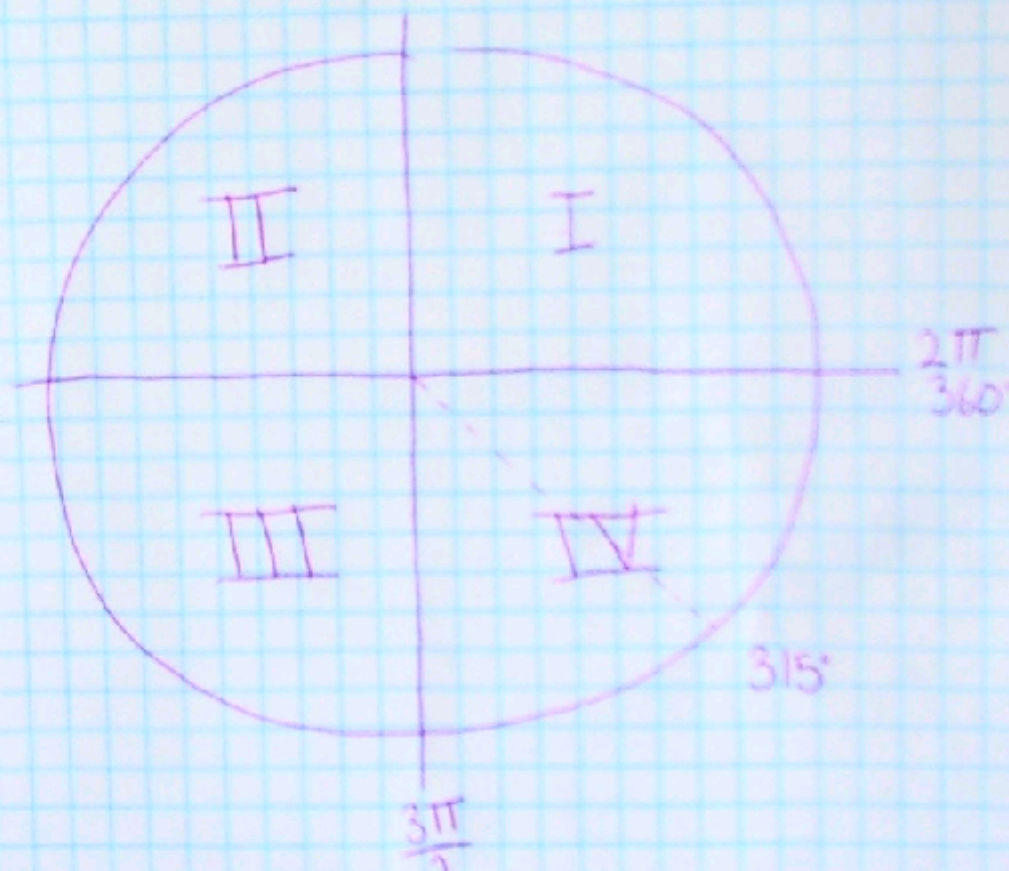
Sec. 3.3

↓  
Quadrant IV

↓  
 $\tan^{-1}(-1) = -45^\circ$   
or  $315^\circ$   
or  $\frac{7\pi}{4}$

$S = 315^\circ$

Hooray! 😊





#53 3.3

$$\sec = \frac{1}{\cos}$$

$$\sec s = 1.0806$$

$$\sec s = 1.0806$$

$$\cos^{-1}\left(\frac{1}{1.0806}\right) = s$$

$$\boxed{.3887 = s}$$



#17 Sect. 3.2

$$s = \theta r$$

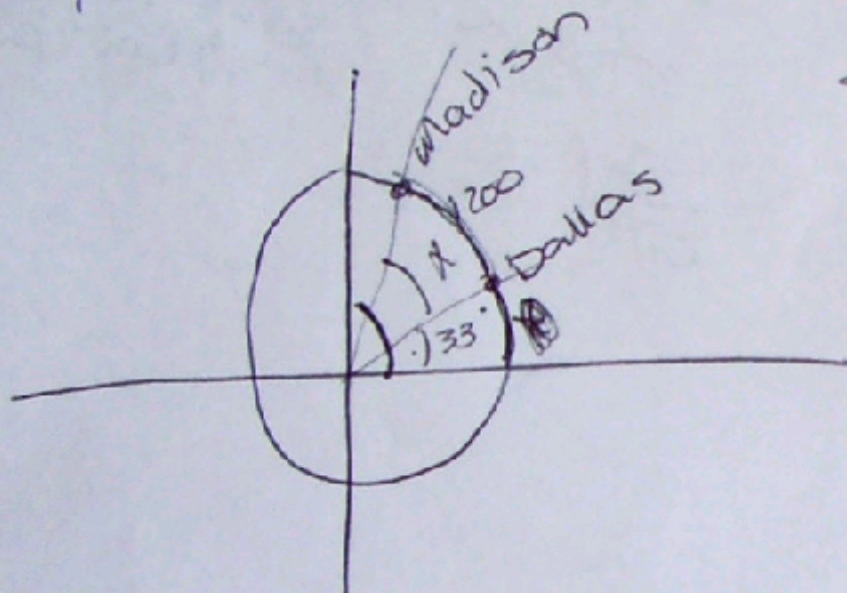
$$\frac{1700}{6400} = \frac{\theta 6400}{6400}$$

$$\theta = .1875$$

$$.1875 \cdot \frac{180}{\pi} = 10.74^\circ$$

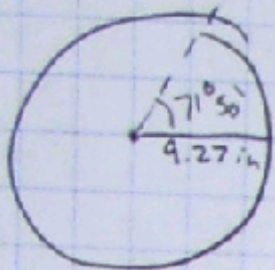
$$33^\circ + 10.74^\circ =$$

$$43.74^\circ$$





#19 3.2



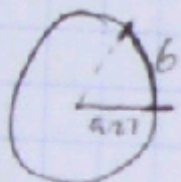
A Convert  $71^{\circ}50'$  into degrees.  $\hat{=}$   
 $71.833$

Then into Radians

$$1.25 \times 9.27 = 11.622$$

$$\frac{71.833 \pi}{180} = 1.25$$

B



$s = r\theta$  so...  $\frac{s}{r} = \theta$

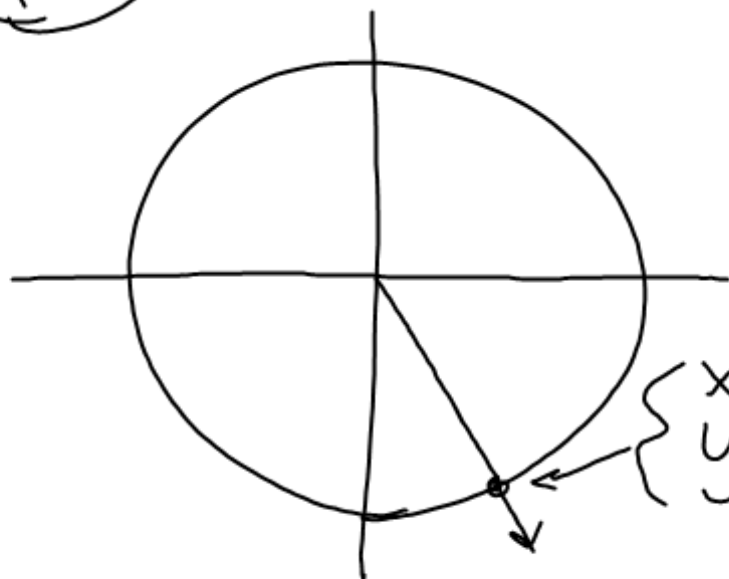
$$\frac{6}{9.27} = .647$$

$$\frac{\pi}{180} = \frac{.647}{x} = 37.07$$

$$[ 37.07 \text{ DMS} : 37^{\circ}4'13.22''$$



47



$$\begin{cases} x = \frac{5}{13} \\ y = -\frac{12}{13} \end{cases}$$

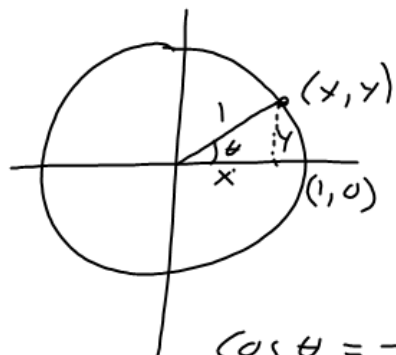
$$\begin{aligned} \sin \theta &= -\frac{12}{13} \\ \cos \theta &= \frac{5}{13} \\ \tan \theta &= -\frac{12}{5} \end{aligned}$$

$$\tan \frac{y}{x} \Rightarrow \frac{-\frac{12}{13}}{\frac{5}{13}} \Rightarrow \frac{-12}{13} \cdot \frac{13}{5}$$

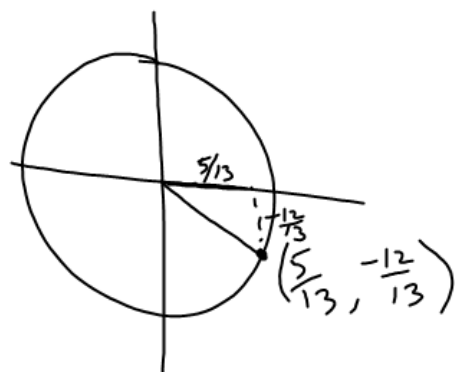
$$\begin{aligned} \csc \theta &= \frac{13}{-12} \\ \sec \theta &= \frac{13}{5} \\ \cot \theta &= -\frac{5}{12} \end{aligned}$$



#47 cont.



$$\cos \theta = \frac{x}{1} \Rightarrow \cos \theta = x$$

For trig ratios

can think of

$$\cos \theta = x$$

$$\sin \theta = y$$

$$r^2 = \left(\frac{5}{13}\right)^2 + \left(-\frac{12}{13}\right)^2$$

$$r^2 = \frac{25}{169} + \frac{144}{169}$$

$$r^2 = \frac{169}{169}$$

$$r = 1$$



Sect. 3.1 # 5-12(2), 21-32(2)

Sect. 3.2 # 15, 23, 48

Sect. 3.3 # 7-22(2), 31, 45, 46, 55-60(2)

Ones you haven't done